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AUCNET: TV Auction Network System

With the enthusiasm of a successful entrepreneur, Masataka Fujisaki, president of AUCNET, leaned forward to the edge of the comfortable leather chair in AUCNET's downtown Tokyo office. It was early February, 1989, and the expansive S shaped sweep of his desk served as a backdrop beyond the attractive glass block wall separating the conference room, as he thoughtfully sketched the goals in his quest to expand AUCNET's market in electronic wholesale trading of used autos as a replacement for traditional physical auction sites:

> The U.S. market is four times as large as the Japanese market, yet auctions are still held at central auction sites with participants holding up their hands to bid. We explored a joint venture with General Motors to link their dealers who could then trade inventory among themselves, but it has not come to fruition. We can't do it just with Japanese staff, we need an entree into the market—we have considered buying one of the auction sites.
>
> Even after we find the right partner, there are still questions about how to implement it. Can we transfer the technology from Japan to the U.S. successfully? What needs to be changed?

Transplanting AUCNET's technology to the U.S. was only one of many directions in which Fujisaki planned to build from AUCNET's early success. Only 10% of the used auto dealers in Japan were members, leaving a large untapped segment of potential members. Opportunities existed to sell other products to the existing member base, or to use the technology in other markets in Japan.

Meanwhile, AUCNET's early successes had attracted at least one other competitor, JAANET, started by a group of dealers in Tokyo. While Fujisaki felt comfortable that AUCNET's early lead in its chosen market niche was defensible, he believed that continued evolution of the system would be necessary to maintain it.

AUCNET had purchased a satellite transponder to be launched in March, and planned to shift the current laser disk based video images used to show pictures of the cars onto a real-time satellite feed, and upgrade service. Excess transponder capacity would be used for other applications.

The AUCNET Service

The AUCNET system was designed to create a centralized wholesale market in which cars were sold using video images, character based data, and a standardized inspectors rating. A car sold

Art Warbelow and Jiro Korkuryo prepared this case under the supervision of Professor Benn Konsynski as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. This case was revised by Professor John Sviokla and Professor Benn Konsynski of Emory Business School.

by AUCNET remained at the sellers location until the transaction was completed. Then a transport company typically delivered it direct to the buyers location, where the buyer saw the vehicle for the first time. During the auction—held each Saturday and Sunday—buyers and sellers remained at their respective businesses. Each was equipped with a proprietary personal computer (PC) linked to AUCNET's central host computer via modems and telephone lines. A laser disk player and TV screen were attached to the PC. Images of the cars to be sold were stored on the laser disk, and retrieved to the TV screen at the appropriate time by a command from the host. Character based information on the car and the auction process were sent over the phone line and overlaid on the video image. Buyers entered bids by pressing the button on a joystick. The auction was controlled by AUCNET's central computer and an operator, although the seller could modify his reservation price as the auction was in progress by manipulating the button on his joystick (see **Appendix** for a detailed discussion of the buying and selling process). Considerable attention had been given to the "soft" dimensions of the auction process. Fujisaki described some of the concerns:

> It is important to provide realism and excitement in the auction. The video image we provide now from the laser disk is not really necessary for the dealers to buy and sell cars—they rely almost entirely on the inspectors report—but it draws them into the auction process. The beep each participant hears when someone else enters a bid is for the same purpose. When a car is sold, we display the name of the successful buyer, so other dealers will think, "My competitor just bought a car, I had better get into the bidding as well." With the satellite, an auctioneer's voice will be added to give one more dimension of a real auction.

AUCNET had carved out a niche in the top end of the wholesale used car market. Users of the system were largely the upscale retail used car dealers with adequate sales volume to justify the monthly cost of operating the system. The average price of a car sold on AUCNET was ¥1,280,000, compared to ¥670,000 for traditional auctions (see **Exhibit 3**). Most cars were either new, or at most a couple of years old. AUCNET would never be strong in the older cars, Fujisaki believed, because buyers needed to personally inspect these cars at the auction site.

Used Cars and the Retail Market

Maintenance of cars was strictly regulated in Japan. A new car could be driven in private use for three years, after which an inspection was required, and every two years thereafter until the car was ten years old, when an inspection was required every year. Commercial vehicles could be driven two years, after which an inspection was required every year. Brakes, engines, tires and other mechanical equipment was required to meet certain quality and safety levels as set by the Ministry of Transport. The required inspection typically cost about ¥80,000. The price of a used car reflected the nearness of the next required inspection. Higher inspection costs for older cars made them economically impractical.

Few used cars changed hands directly between end users. A complex web of title and registration requirements and other paperwork made direct selling difficult. A buyer was required to prove that a parking place off Japan's crowded streets was available. Dealers frequently bought parking spots and bundled them with the car. Increasing costs of both Japanese made and imported cars made financing an important part of the transaction. A final impediment to direct consumer exchange of cars was the Japanese consumer's preference to deal with a reliable, substantial business. To an even greater extent than American consumers, they wanted to "feel good" about buying a used car, and avoid the risks of hidden defects for which there may be no recourse if purchased from an individual.

Retail used car demand was becoming increasingly differentiated. Buyers typically came to a used car dealer and requested a particular make and model of car in a certain condition. This trend was most noticeable in the urban areas, less so in rural markets. Demand for top quality, late model used cars was highest, and supply was limited. Older cars had limited demand, with many available.

Used auto dealers advertised in newspapers or publications such as *Auto Sensor*, a thick weekly publication which listed cars for sale. A recent issue listed 16,204 cars, in addition to generic ads positioning dealers in specific market segments. Consumers typically visited the dealerships mostly on weekends. If the particular car desired was not in stock, the consumer would request that the dealer look for one. During the week, the dealer would then call other dealers and visit auctions, in an attempt to fill customers requests.

In response to the segmentation of consumer demand, retailers were becoming focused, particularly in urban areas. A dealer might specialize in late model large sports cars, four wheel drive cars, or even a particular make and model of car. In part because of high real estate prices, but also because of the additional administrative skills required, most used car dealers were small, carrying at most 40-50 cars in stock. Average turnover was about 50% per month.

The Structure of the Wholesale Market

Vertical Channels of Distribution New car dealers typically sold trade-ins to used car dealers rather than reselling them to consumers. A layer of wholesale brokers existed in the industry who bought cars in bulk from new car dealers, then immediately re-sold them to retail used car dealers. Paradoxically, beside trade-ins, new cars were often sold to the wholesalers as "used" cars. Considerable prestige was associated with maintaining certain market shares for flagship models among the new car manufacturers. Dealers were required to meet sales quotas for these models. Near the end of the selling period, if quotas had not been met, the dealer would register a block of new cars and sell them to a wholesaler. The wholesaler, working on razor thin margins, would piecemeal sell the lot to used car retailers within a day or two.

Wholesalers seldom used AUCNET. They operated on tight margins, and needed to move cars quickly. An auction site allowed them to put cars in the day before or even the day of the auction. During the several days wait to get a car inspected and processed for AUCNET, the wholesaler would have many opportunities to sell the car at traditional auctions. Too, most operated without storage facilities, typically buying and selling quickly so cars could be moved directly from the new car dealer to the used car dealer's lot. New car dealers were unable to provide storage for even a few days—their space was limited, and the purpose in "fire-selling" the cars to a wholesaler was to get them off the lot.

Fujisaki had recently implemented lenient payment terms by which sellers were paid before money was received from the buyers in an attempt to attract the wholesale trade. Once the satellite based system was in place, he expected that the processing time to enter a car in the auction would be cut considerably, thereby attracting more wholesale sellers.

Horizontal Trading Channels Direct sales between used car dealers was common in rural areas. If the car needed was not in stock, the owner would call dealers in nearby towns. Competition was limited, and long term relationships often developed. In urban areas, dealers were more focused and competitive. A customer's unmet demand was a lost opportunity, as competitors were nearby. Dealers were less inclined to rely on their competitors inventory, particularly those selling to the same market segment. Relationships did develop between dealers selling non-competing lines. A specialized dealer would rather sell a trade-in that did not match his chosen selling profile to another dealer specializing in that type of car, rather than dilute his image by selling it to a consumer. The other dealer would then reciprocate with trade-ins that did not match his chosen market segment. But for most urban dealers, if the car desired by the customer was not in inventory, he would go straight to an auction to locate one.

It was in this segment of the wholesale market, the trading of used cars between dealers, that AUCNET was strongest. The typical AUCNET participant both bought and sold, often in the same

auction. AUCNET offered a wide selection of top quality late model cars, as well as a readily accessible market in which to unload excess inventory. Sakae Akabame, owner of Japan Ltd., a used car dealership, discussed AUCNET as a source of cars:

> We purchase more cars on AUCNET than we sell, because our location gives us a very strong selling capability. Our three stores are differentiated and specialized—one sells luxury, late model cars; another light, high performance sports cars; the third 4-wheel drive vehicles. "Realizing the Dream" is the catchword of our store. The cars on AUCNET are the late model, top quality ones which we specialize in, allowing us to find exactly what our customers are looking for. Some dealers say the prices are higher on AUCNET, but I don't think so—cars are the highest quality, and this is reflected in the price.

Takaji Yamaguchi, president of Bushu Motor Co. Ltd. commented on his firm's use of AUCNET:

> The merit of AUCNET is 1) the popular lines can be sold on AUCNET at the highest prices, and 2) I can keep a bigger, more expensive inventory without feeling insecure. For example, that Toyota Celica convertible (pointing to a car on the showroom floor) will be in the AUCNET auction Saturday. It was imported from the U.S., and turned out to be too expensive for us to sell here. AUCNET allows us to risk putting such cars in inventory.

The Auto Auction Market

Transactions between manufacturer's dealers, wholesalers, and used car dealers not made through direct negotiations typically took place at auctions. The aggregate volume of cars sold at all types of auctions had been increasing at about 20% annually for several years, while direct sales of all types had declined (see **Exhibit 3**). In 1986, 570,000 used cars (13% of used car sales) were sold at auctions—in 1987, 730,000.

There were 140 auction sites in Japan, of which more than 100 held weekly auctions. About 60 were sponsored by car manufacturers, and used by new car dealers to sell trade-ins and surplus new cars. About 50 auction sites were owned by the industry trade association, the Japanese Used Car Dealers Association (JUCDA). Local chapters in each prefecture[1] received government loans to purchase land to hold auctions, in the interest of rationalizing the distribution system. Finally there were a number of private auctions, of which AUCNET was one. The JUCDA and manufacturer's auctions differed from AUCNET because they tended to be vertical channels, in which one group of participants bought at each auction, and another group sold. AUCNET ranked fifth among all auto auctions, and held a 10.3% share in private auctions.

Evolution of the Auto Auction

In a traditional auto auction, cars, buyers and sellers were assembled at a central auction site. Cars were brought onto the auction floor one after another, and buyers bid by holding up their hand. In the late 1970s, a new system was introduced in Japan called a "point of sale" (POS) auction, in which buyers pressed a button to electronically register their bid, instead of raising their hand.

Cars were inspected prior to the auction, usually by an auto mechanic without special training, at a cost of about ¥300 per car. An estimated 80-90% of the buyers personally inspected the cars prior to the auction. After purchasing a car, if the buyer found that it was not as represented, the

[1] A prefecture in Japan was similar to a county in the United States. There were 47 prefectures in the country.

auctioneer would nullify the sale. However, once the car was driven off the auction lot, the sale was final.

The "slide auction" was an innovation introduced in the early 1980s. It addressed the high cost of transportation which sellers paid to move a car to the auction site, and then back again if it did not sell. About 45% of exhibited cars remained unsold at each auction. In addition, it was becoming increasingly difficult and costly to acquire adequate space to hold the auctions in metropolitan areas. Instead of physically assembling the cars, the slide auction was held using color 35mm slides. Most of these first attempts to hold auctions without transporting the cars ended in failure. It was widely believed that the failure was due lack of a standardized inspection process. Buyers were reluctant to purchase cars they had not seen in person. Thus, in the beginning of 1985 when AUCNET began operations, most auto auctions were held in the traditional format, with cars subject to a cursory inspection, and buyers publicly bidding at a central location, although POS systems were often used at these auctions.

Most auctions were held during the middle of the week, during the dealers least busy time. Even so, attending auctions was a time consuming process for many small dealers. Owners of such shops usually engaged in sales activities themselves, and felt they lost significant sales opportunities when gone. Because there was no precise schedule for when certain cars would be sold, a dealer might attend an auction the entire day to bid on one or two cars.

History of AUCNET

Fujisaki had started in the used auto business in 1967, building Flex Auto, Inc. into a major used car retailer in Tokyo. He still owned several retail stores, although day to day management was delegated to others. In 1982 a subsidiary called Flex Japan was established to trade in used personal computers. As part of a decision to expand Flex Japan into computer systems and other electronic equipment, AUCNET was established as a subsidiary of Flex Japan with Orient Finance Inc. as a second principal shareholder in 1984. The goal was to establish an auto auction business utilizing computers and advanced communication technology to be used by auto dealers to buy and sell inventory in the wholesale market. After a year of development, the first TV auction was held in June, 1985. Profits had been doubling every year since (see **Exhibit 1** for financial information).

AUCNET currently operated from two locations in Tokyo. One housed the administrative functions, along with other Flex Japan subsidiaries, while the other was an operations center near an NTT switch where communications lines could be conveniently installed. In the operations center, four people worked with visual image processing, five were computer operators, a half dozen part time workers key punched data two days a week for the upcoming auction, and another eight handled calls and claims. A half dozen people worked in the administrative area, along with eight car inspectors.

AUCNET's start-up and rapid growth had not been without resistance. Fujisaki remarked:

> Four years ago when we started up, we distributed a brochure to dealers and secured 1000 reservations. Then the association of used car dealers announced they were against AUCNET, and formed a committee to counter our development. They felt their many auction sites were threatened. Members who did not cancel their reservations were told they would be deprived of membership. More than half withdrew. Eventually, because of antitrust complaints by dealers and publicity in the press, the government intervened.
>
> When the association decided they could not block AUCNET, they decided to duplicate the service. They started in summer 1986, one year after AUCNET. Cooperating with Hitachi, Yasuda, Fuji Bank and Marubeni (the Fuyo group), they spent considerable amounts of money to make a competitive system called

VAN8000—so named because the association represents 8000 dealers. After a year of trial, they retreated, failing to gather membership. I believe, in the network business, there is always the first mover, and never the second.

Communications Architectur

AUCNET network consisted of 44 "front computers" or access nodes scattered around Japan, to reduce communications costs. Regional dealers called into the nearest front computer via telephone connection and 300 baud modem. Bids were aggregated at this level, and sent on to AUCNET's central host computer at the Tokyo operations center via low speed—300 bit per second—dedicated lines leased from NTT.

The telecommunications lines carried input from buyer's and seller's joysticks to AUCNET, and fed back the results of the bidding process. In addition, all character based information on the cars being auctioned which was overlaid on the image displayed during the bidding process was sent from AUCNET's computer to all participants as the auction was in progress.

Hardware

The proprietary PC used by the dealers was an 8 bit microcomputer, usually without floppy or hard disk. These could be added as an option, and were necessary if the dealer wanted to run optional software which could do back office accounting. The AUCNET application program running on the PC was stored in read only memory (ROM). When changes were made in the software, which had been done several times as the service evolved and was improved, the ROM in each machine was changed. This was costly and time consuming, but had been the least costly way to purchase the machine initially, because it eliminated the need for secondary storage devices.

The PC contained an off-the-shelf "super-imposed" board which combined digital character based information received via modem and telephone lines from AUCNET's central computer with the analog video signal from the videodisk, and displayed it on the TV screen.

Fujisaki discussed how the PC fit in to his early strategy for AUCNET:

> Cost and ease of use are key factors in getting a network started. By using a proprietary terminal with the program in ROM, and buying in volume, we kept the cost low. Networks are like rockets, it takes 80% of the energy to get off the launch pad, but then not much to keep it going. You need a minimum of 1000 terminals distributed quickly, otherwise you lose your reputation. If you succeed, the trees and grass are attributed to you. It is a snowball effect. Either you succeed big or fail big. When I started AUCNET, I bought 1000 terminals up front and put them in a warehouse, so we got a good price, and they were a sunk cost. This helped me get to critical mass quickly.

In addition to the PC, the system included a 12" laser disk player, a modem, and a color TV used as a monitor—standard off the shelf items. A keyboard was provided, but interaction during the auction was through a standard game style joystick. Only the push buttons were used—other joystick functions were disabled (**Exhibit 2** illustrates the equipment).

F es

Participants leased the necessary equipment—the proprietary PC, laser disk reader, TV screen, and modem—for ¥29,000 per month. The rate was calculated on a 5 year payback on AUCNET's purchase cost. Laser disks cost about ¥14,000 per month. Telecommunications costs to

the nearest AUCNET access node were variable with use. AUCNET paid all communications costs between nodes and the central host computer. It was expected that the new satellite based services would not increase user fees, even though satellite dishes would be installed at each users site.

In addition, inspection of each car to be offered on the system cost ¥2,500. If the car was sold, buyer and seller each paid an additional fee of ¥7,000. If not sold, the car could be offered again the next week without additional inspection—subsequent offerings required reinspection.

Inspectors

The vehicle inspection process was fundamental to AUCNET's success, according to Masanori Tokuhashi, chief vehicle inspector for AUCNET:

> The reliability of the inspections is at the heart of the system. If someone tried to copy us, even if they had the hardware, the inspections would be our competitive edge. Originally we copied the inspection criteria of the auction sites, but this has been adjusted based on claims and experience—it is now much more rigorous. As a result, we ended up weeding out the low quality cars, because they were the hardest to describe accurately by inspection. We leave them for the auction sites, and have continued to increase the rigidity of our inspections.

AUCNET employed eight full time inspectors, and had 64 contract agents who did inspections all over Japan. The AUCNET inspectors were used mostly to train new inspectors, and to fill in case of emergency or illness. New inspectors were selected based on a knowledge of the used auto business, and an eagerness to learn and work. Tokuhashi discussed the training process:

> First they learn about the AUCNET system, with special emphasis on the inspector as the heart of the system. Then we teach them about the vital contact between the inspector and the customer. We start them with the spiritual stuff—we "brainwash" them although that might not be a good word! Finally we teach them the technical aspects of inspecting cars. There is no specific test afterwards, we just let the participant think about whether they are able and willing, and if not, they quit. The trainee then undergoes an apprenticeship which may last three weeks to three months, traveling with an AUCNET inspector—it is on the job training.
>
> Inspection work is physical labor, a tough job. It is done outside, and often in bad weather. That is why people willing to do the job are limited. So AUCNET is trying to raise the social status of the inspector, coupled with increasing reliability, so that customers can feel safe that they are buying a good car.

Inspectors were paid the entire ¥2,500 fee charged by AUCNET to inspect a dealers car. Occasionally a fixed salary was paid also to new inspectors who showed promise. An inspection on average took 7 minutes, and the top inspectors averaged around 130 cars per week. Inspectors in rural areas often worked part time at other jobs, and inspected fewer cars. Most inspections were done Sunday through Tuesday, but inspectors were free to arrange their own schedules, and FAX reports on their activity back to headquarters.

Each inspector was given an exclusive geographic area. Within that area, they served as the sales force for AUCNET, calling dealers and encouraging them to list cars. If an inspector was particularly busy one week, or unable to respond quickly to an important customer in a fringe area of his territory, AUCNET would dispatch an inspector from headquarters or an adjacent area to fill in.

Current Competition

JAANET was started in 1988 by a sub-group of about 40 JUCDA members, all located in Tokyo, who wanted to create a closed group auction, in which only they sold. The system used 9600 baud switched phone lines to connect user's generic personal computers to the host computer. Video images of the cars to be sold were downloaded over the phone lines, which took about 80 seconds per image. The selling dealers used a special still video camera to take pictures of the cars, and sent them to JAANET over the phone lines. There were about 400 participants on JAANET, many of which overlapped with AUCNET membership. Auctions held at auction sites owned by the JUCDA sub-group which owned JAANET were by far the largest in Japan.

Sakae Akabame, owner of Japan, Ltd., commented on why he used AUCNET, but was not a member of JAANET:

> JAANET calls me every week, but I feel they are just copying AUCNET, and we don't like that. Also, they hold their auction on the same day, and I can't participate in both. The number of cars on AUCNET is increasing, and the evaluation is the best in Japan. JAANET uses the same evaluation process as the auction sites, and it is not as credible.

Satellite Impact and Technology

Japan Business Television Inc., a subsidiary of AUCNET, Toshiba, Mitsui and others had jointly funded technology which split a single 27 MHz transponder into as many as eight teleconferencing grade video channels, or four full motion TV channels. The technology was unique because it was analog time division multiplexing rather than digital, and did not involve a data compression algorithm. "A digital approach would have made splitting the channel easier, but would have been prohibitively expensive for the dealers because of the cost of the decoding equipment needed at each site", Fujisaki stated. Additional equipment costs for the technology proposed was about ¥10,000 per month at each dealers site. One or two of the four full motion channels would be used to support AUCNET, with the remainder of the transponder's capacity sold or used for other applications.

The satellite link opened up potential new markets for AUCNET's services. Fujisaki planned to install terminals at physical auction sites, where buyers who were not AUCNET members could gain access on a usage sensitive basis. A ¥7,500 fee would be charged, in addition to the normal inspection and selling fees. A single large screen would show the car being sold, and users would enter bids using POS type entry devices.

Because the satellite link supported full motion video, auctions at the trade association's sites could be broadcast to AUCNET members as well. Most auctions were of the POS type, and bids from AUCNET members could be taken over the phone link and integrated into the auction site's POS system. Two auction sites had already installed equipment to make this possible, and several others were considering it.

A joint project with Mazda was being pursued which would allow Mazda dealers, who typically stocked only four or five of the thousands of possible SKUs, to view inventory at the factory or in other dealers stock, using AUCNET's technology and transponder capacity. Mazda's existing system provided character based data, but a video system could be used point of sale with the customer as a sales tool.

The satellite link introduced at least one problem. The preview function, which dealers used to view cars prior to a sale, would not be operable during the auction. Before or after the auction, the dealer would be able to bring up images of cars to be sold by connecting to the AUCNET computer,

and requesting that it send a particular still picture over the satellite. Up to 900 still pictures a minute could be accessed in this way. The connection process took 14 seconds, but then frames could be sent within one second of a request.

Fujisaki's Dream

AUCNET had established a strong beachhead in Japan's fragmented used car auction market, but still accounted for only a low percentage of used cars traded. Now Fujisaki was challenged with maintaining that position in the face of competition from JAANET, and potentially others wanting to share in his success. Would his lead lock out competitors? Could he successfully use the capabilities of the satellite link to strengthen and expand from his position with the existing customer base? What other innovations were necessary or possible?

But Fujisaki's dream was to transfer AUCNET's technology to the U.S. used car market. A contact had been made with GM. In 1987, equipment was brought to the United States, and several tests conducted by General Motors. Dealers were assembled in a room, and each given an AUCNET bidding terminal. Using the standard inspection results and video images, cars owned by the dealers were actually traded on the system. While the results had been positive among the dealers, GM had not pursued the project further.

Fujisaki was convinced that with the right partner, an AUCNET-type system could succeed in the U.S. market. One approach under consideration was to purchase an auto auction site in the U.S. as a foothold in the market. This could be used to gain experience in the U.S. market, as well as a site to install POS equipment. Experience with and the acceptance of POS bidding at the physical auction sites he felt was a necessary prerequisite to a full TV auction system. For now the upcoming satellite launch and porting of the system to the new delivery technology in Japan was taking all his attention. But with that in place, he planned to assess the U.S. market in earnest.

Exhibit 1 Financial Exhibits

Revenue and Profit

Year	Sales (¥000)	Ordinary Profit (before taxes) (¥000)
1985	3,899,000	29,000
1986	13,232,000	57,000
1987	19,848,000	111,000
1988	31,747,000	300,000

Note: "Sales" includes both the value of cars sold on the system, as well as AUCNET's fees. For 1988, the breakdown was:

Value of cars	¥29,915,000
Auction fee	830,000
Equipment sale [a]	541,000
Other	461,000

"Other" includes rental fees, software usage fee, initial terminal installation fee, camera fees. [b]

Capitalization

Current Capitalization as of December, 1988 ¥213,000,000

[a] The TV monitor, proprietary computer, laser disk, and joystick were sold by AUCNET to a company which subsequently leased them to participants.
[b] The modem and proprietary ROM card were rented by AUCNET directly to participants.

Exhibit 2 System and Video Display

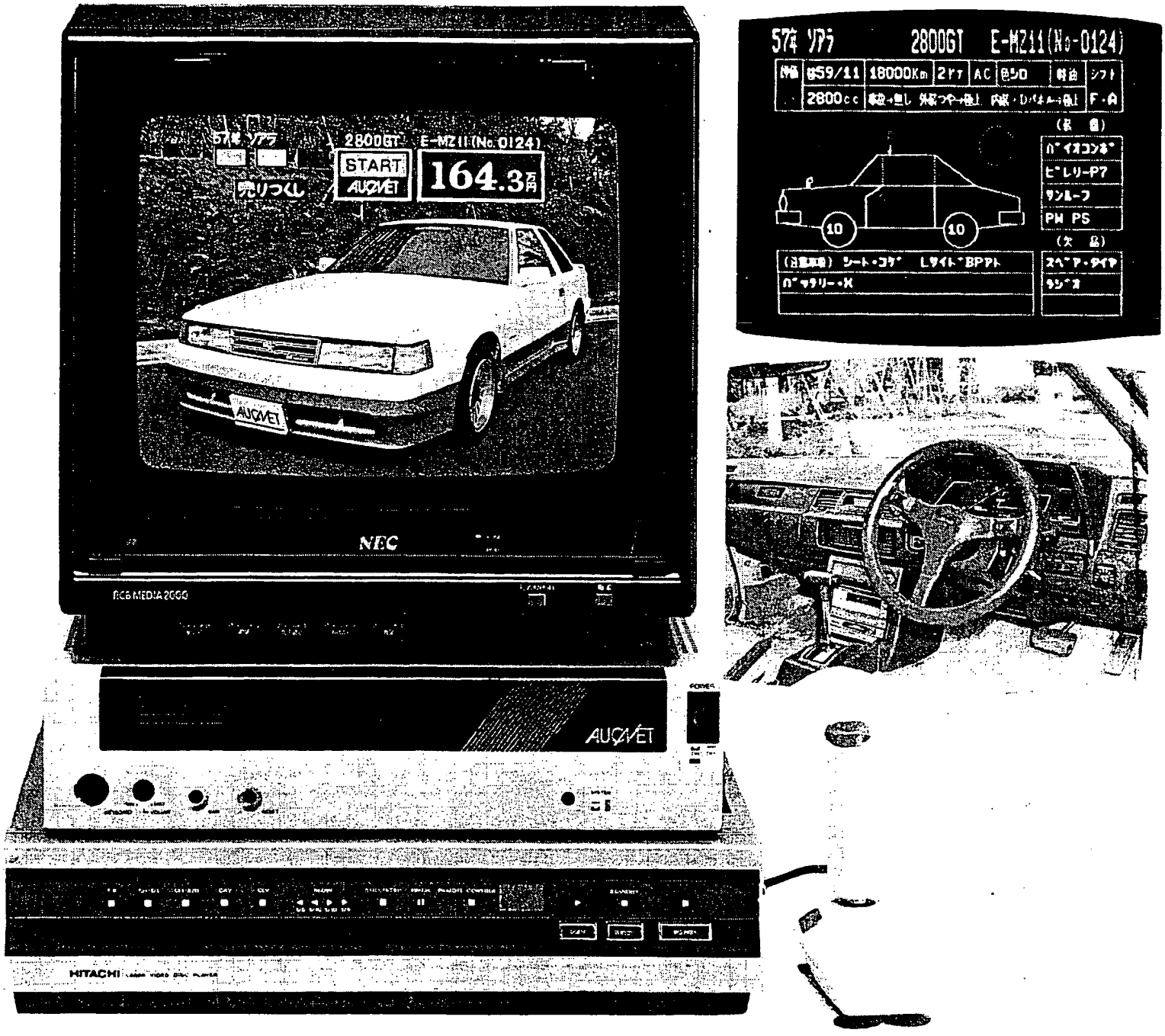

Exhibit 3 Statistics

Used and New Car Sales

Year	Used Car Titl_ Transfers		New Car Registrations		Ratio
1985	4,240,297	(--)	4,028,132	(--)	1.053
1986	4,369,451	(103.0%)	4,093,979	(101.6%)	1.067
1987	4,497,642	(102.9%)	4,344,288	(106.1%)	1.035
1988	4,774,748	(106.2%)	4,971,107	(114.4%)	.960

Auction Site Sales

Year	Auctions at Auction Sites	Cars Placed	Cars Sold	Ratio	Unit Price (¥000)	Total Sales (¥000)
1977	811	167,047	119,885	67.0%	366	40,964,684
1978	1,027	222,575	147,148	66.1	404	59,511,841
1979	1,171	262,363	156,603	60.0	409	64,003,586
1980	NA	304,563	197,052	64.7	399	78,677,159
1981	1,469	358,102	223,661	62.5	497	111,057,476
1982	1,717	429,562	249,975	58.2	547	136,718,878
1983	2,001	517,876	314,370	60.7	554	174,093,954
1984	2,283	628,049	376,816	60.0	598	225,507,144
1985	2,447	770,464	457,175	59.3	632	288,843,602
1986	2,966	1,020,635	570,567	55.9	660	376,529,575
1987	3,213	1,228,398	729,991	53.9	670	492,582,370

AUCNET Sales

Year	Cars Placed	Cars Sold	Ratio	Unit Price (¥000)	Total Sales (¥000)
1986	33,458	14,944	44.7%	987	13,418,129
1987	44,111	19,637	44.5	1,078	21,175,572
1988	61,101	25,455	41.7	1,280	32,590,879

APPENDIX

Using AUCNET

The process of actually listing and selling, or buying a car on AUCNET are described in the next several sections.

Inspections

For the seller, the first step in the process was to request an inspection by calling AUCNET and providing information on the number of cars to be inspected and their location. An inspector was then dispatched to the dealers location. Prior to his arrival, the dealer would fill out an inspection report form and take two exterior and one interior color 35mm slides of the car. When the inspector arrived, he would go over the car with the dealer, confirming the condition as shown on the report form. Typically one or two small changes might be made. The inspection covered primarily the cosmetic condition of the interior and exterior of the car. The mechanical condition of the engine and drive train were not inspected.

The inspection results were summarized in a single number, between 1 and 10. A car which did not rate at least a 4 could not be sold on AUCNET. A 10 indicated a new car. A 5 or 6 could be resold to the consumer without additional work. Most buyers used this number as the key decision variable when buying a car, even though more detailed results of the inspection were available.

The inspector delivered the inspection reports and undeveloped films by courier service to AUCNET's Tokyo office no later than Tuesday, for the next Saturday's auction.

Laser Disk

Films were developed by AUCNET at a lab in its operations center in Tokyo on Tuesday night, then sent out to a subcontractor who transferred the positive images to a video tape. The tape was returned to AUCNET for editing, then sent to the Pioneer factory to be transferred to a 12" videodisc. Two thousand copies of the disk were pressed and delivered via courier to AUCNET members in time for the auction to start at 10 AM on Saturday.

The laser disk, which cost members ¥3500 each, could hold up to 54,000 frames on each side. Each picture, called a "frame," was accessed randomly by the computer using the frame number. The laser disk could also be used for moving video, although this took up much more space. Each auction was usually preceded by a moving segment in which announcements were made regarding future auctions, administrative issues, and planned changes in the system. No character-based data were kept on the videodisc, although technically this was possible.

Auction Dynamics

The auction began promptly at 10 AM on Saturday morning. Cars were listed by number in time blocks of 45 minutes. The dealer received a thick auction booklet showing information on all cars to be sold, and the time block they would be sold in. The system only needed to be monitored during this time. "Ordinary" cars were sold on Saturday, with sports cars, four wheel drives, recreational vehicles, trucks, and other specialty vehicles—called "corner" cars—being sold on Sunday.

After turning on the system, a menu was presented to: 1) preview any cars being sold in the auction, 2) join the auction, 3) view an electronic database of past auction prices,[2] 4) run back office applications on the computer.[3] The user could switch at will between functions with a keystroke. During the auction, the user could switch to the menu and preview a car of interest that was to be sold in a few minutes, then switch back and join the auction again as the cars time slot came up.

In the beginning, the auction had been held only on Saturday. As volume grew, the auction could not be completed before 9 PM, and two channels had been auctioned simultaneously, between which the user could switch by hitting a function key. Participants found this inconvenient because they could only monitor half of the auction. Now the sale was held on one channel over two days, but volume would soon require two channels over two days.

Three pictures were displayed on the screen for each car sold (see **Exhibit 2**). The first showed a "fold out" graphic drawing of the car, with scratches, damage, etc. marked by codes. A "P1" for example indicated a scratch at that location, which would cost ¥10,000 to repair. The second image showed a close-up of the interior and dash. The third showed an exterior view of the car. Overlaid on the last image were several blocks of information used during the auction. The top line showed the model car and the stock number, which could be keyed to the printed auction booklet. In large numerals on the right top of the screen was the starting bid previously specified by the seller, which changed to show the current high bid as the auction proceeded.

After a few seconds pause, a "START" signal flashed on the screen, and the bidding began. As each bid was entered, a beep was generated on every user's system—the effect was not unlike a skillet of popcorn at the peak of popping. Each press of the button on the top of the buyers joystick pushed the bid price up ¥3000. Additional bids were not accepted from a buyer who was the current high bidder. Initially, most of the bids were bogus, generated by a "dummy" bidder at AUCNET's operations center. The dummy bids were actually entered by the AUCNET operator rapidly pressing the button on a joystick—a computer program was avoided because users too easily picked up the pattern and the desired effect was lost.

Three color coded blocks on the left hand side of the screen indicated the intensity of the bidding. The red block indicated one or two people bidding, yellow indicated two or three bidders, and green indicated more than three bidders. The red and yellow indicators could be generated by dummy bids only, but the green indicator <u>always</u> indicted real bidders in the auction.

Prior to the auction, the seller set a minimum sale price, but this was not revealed to buyers prior to the auction. About ¥50 to ¥60 thousand below the minimum sale price, the system disconnected the dummy bidder and reversed the color and background of the START signal, indicating to bidders that the car would actually be sold if bid were raised slightly more. As the bids broke through the minimum sale price, the box at the lower left corner of the screen turned red. Finally, when the time between bids reached a certain threshold, the system selected the last high bid as the winner, and flashed "SOLD" on the screen. The name of the winning bidder, as well as the location of the car, was then shown on the screen. The identity of the seller was unknown at this point to all bidders, including the buyer. The entire process took 40 seconds on average to show and sell a car, compared to about one minute for an auction using hand signals, and 20-30 seconds for a POS auction. The faster response time of the satellite based AUCNET system would reduce the time to 20 seconds.

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[2] This feature was not active yet, but would be available when the system was converted to satellite. The price database was currently published every five weeks, showing prices captured from past sales made on the system. It was available only to AUCNET members.

[3] These were available only on machines that had an optional external storage device, and were not integrated with the AUCNET auction process.

The winning bidder was then required to press the second button on the base of his joystick to indicate confirmation of the bid. If he or she failed to do this, any further bids in the auction would be blocked. A successful buyers could back out of the deal by calling AUCNET and paying a ¥50,000 penalty which went to the would-be seller—a seller could do likewise for a ¥100,000 penalty. AUCNET also recorded the next two highest bidders on each car sold, in case the buyer defaulted.

Typically, 40% of the cars sold—the remainder failed to reach the minimum sale price. About 90% of the sellers participated online during the sale of their car and could intervene if they wished. Most did. By pressing the top button on his joystick, the seller could signal that the car would reach the minimum sale price within the next ¥50 to ¥60 thousand, even if the pre-set floor had been much higher. By pressing the base button, the seller indicated that he was willing to accept the current price as a sale price.

The AUCNET operator could intervene in the bidding process as well, by lowering the minimum sale price up to ¥20,000 below the sellers stated minimum, even if the seller was participating on line. Yoshiaki Hoshino, deputy general manager of General Affairs, commented on the reason:

> There is psychological resistance at certain levels—the seller wants at least 1 million yen, and the buyer is unwilling to go over 1 million yen. AUCNET wants to see the cars sold, so in our agreement with participants we reserve the right to intervene in this manner. At first we received many complaints, but now we seldom hear complaints that the operator intervened inappropriately.

There was considerable technique to molding the bidding as it progressed. Good timing on indicating that the minimum sale price was near could spur buyers on. However, if the seller intervened to remove the dummy and indicate the minimum sale price was near, but then did not press the top button within ¥60 thousand, the AUCNET operator could do so, and the sale was binding on the seller even though it might be well below the pre-stated minimum sale price. Hoshino felt that the ideal bidding pattern from the sellers standpoint was to generate interest by intervening with a low minimum sale price, and then have two bidders slowly push the price up as each tried to be the last to press the button just before the system declared a winner.

After the Sale Service

Occasionally a car would be unsold at the auction, and an unsuccessful bidder would decide to make an additional offer. By calling AUCNET on the phone, negotiations could be opened with the seller in an attempt to make the transaction.

Successful buyers and sellers in the auction would receive in a few days a report detailing the transaction. Buyers then had five days to pay funds to AUCNET. Sellers were guaranteed payment within two days of AUCNET receiving the paperwork on the car. The paperwork was processed by AUCNET and forwarded to the buyer.

Occasionally disputes arose as to the condition of a car sold on the system. Buyers had five days in which to register complaints with AUCNET. Typically this might involve a buyers allegation that the muffler did not meet requirements, or other mechanical defects. AUCNET would have the car assessed by a third party, usually a manufacturer's dealer, and obtain a judgment of the car's condition and estimate to repair. AUCNET members had agreed to abide by AUCNET's decisions in such matters, although if either party was not satisfied by the arbitration, he or she could appeal to a "claims committee" on which peer dealers sat, and the decision of that body was binding.

About 6% to 7% of the cars sold on AUCNET generated complaints from the buyers, compared to about 10% of cars sold in traditional auctions.